Space Weather Forecast

Issued on Saturday, 08 July 2023 at 01:39 Local

This forecast provides a four day assessment of space weather events. The probabilities stated below are for reaching or exceeding the given levels. For more information about space weather impacts please see the Met Office Space Weather Scales https://www.metoffice.gov.uk/weather/learn-about/space-weather/uk-scales

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Space Weather Forecast Headline: Chance of R1/R2 Radio Blackouts throughout. A slight chance of a Minor Geomagnetic Storm today.

Analysis of Space Weather Activity over past 24 hours

Solar Activity: Solar activity is Moderate, with one Moderate flare observed, from a region located in the southwest. There are nine numbered sunspot regions on the visible disc. The largest region is in the southeast quadrant, but currently appears stable. No Earth-directed CMEs (Coronal Mass Ejections (CME) detected in available imagery.

Solar Wind / Geomagnetic Activity: The solar wind was predominantly at slightly elevated levels, and on occasion reached elevated levels and is currently at around 460km/s. Total magnetic field strength was at moderate levels to start, declining steadily to current weak levels. The important north-south component, Bz, varied weakly to start, but became predominantly weakly negative from around 07/0630. Geomagnetic activity has been largely Quiet to Unsettled Kp 2-3) but with two Active Kp4 intervals recorded.

Energetic Particles / Solar Radiation: No solar radiation storms were observed.

Four-Day Space Weather Forecast Summary

Solar Activity: Low to Moderate solar activity is forecast, with a chance of Moderate flares. There is a slight risk of a strong flare.

Solar Wind / Geomagnetic Activity: A continuation of the slightly-elevated to elevated solar winds expected to start the period. This expected to decline from day 2 (9 July) onwards. Some influence remains possible from a CME which left the Sun on 4 July, but this low confidence, with signs that it may have already passed through. Therefore the solar wind is expected to start at slightly elevated to elevated or possibly strong day 1, then decline to slightly elevated or slow levels by day 4.

Geomagnetic activity is forecast to be Unsettled to Active (Kp 3-4) with a slight chance remaining of G1/Minor (Kp5) storm intervals day 1. Geomagnetic activity expected to reduce steadily from day 2 onwards, becoming generally Quiet to Unsettled (Kp 1-3).

Energetic Particles / Solar Radiation: Solar radiation has a slight but increasing chance of reaching the S1/Minor Storm threshold through the period.

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Met Office Space Weather Forecast

Geomagnetic Storms:

Geo-Magnetic Storm Probability (Exceedance)	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Minor or Moderate	G1 to G2	No	20	5	1	1
Strong	G3	No	5	1	1	1
Severe	G4	No	1	1	1	1
Extreme	G5	No	1	1	1	1

Radio Blackouts - X Ray Flares:

X Ray Flares Probability	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	R1-R2 M Class	Yes	40	40	40	40
Very Active	R3 to R5 X	No	5	5	5	5

Solar Radiation Storms - (High Energy Protons):

Radiation Storms Probability (Exceedance)	Level (cm^{-2} sr^{-1} s^{-1})	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	≥ S1	No	5	5	10	10
Very Active	≥ S3 *	No	1	1	1	1

* S3 ≥ 10 MeV ≥ 1000 pfu and / or ≥ 50 MeV ≥ 10 pfu. (pfu = $cm^{-2}sr^{-1}s^{-1}$)

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